

Application No: 10/623,933
Filed: July 21, 2003
Applicant: James C. Smith

ED 848208267 US

REMARKS

The Office Action of August 10, 2005, has been received and considered. A Petition for Extension of Time with appropriate fee is filed with this response.

It should be noted that the present inventor, James C. Smith, is the same inventor of Patent Numbers US- 5,295,599 and US-5,513,768 and US-6,145,688 and US-6,375,028 and US-6,622,882 as noted in the attached Notice of References Cited by the examiner. It is also noted that the present invention adds additional features to caps used in the liquid handling field.

By this response, claims 1-17 are cancelled Claims 18,19, 22 and 23 are amended. Claims 24 –41 are cancelled. New claims 46-58 are submitted for consideration. Claims 42-46 have been withdrawn from consideration as non-elected claims. Minor corrections have been made to the specification. No new matter has been introduced. Reconsideration of the application as amended is respectfully requested.

Summary of Invention

The invention of Claim 18 relates to a wiping cap specifically engineered to be accessed with the use of a standard disposable pipette tip that is attached to a hand held pipetter in the liquid handling industry. In normal operation when the pipette tip is inserted into the fluid of a sample filled container and the precise amount of sample is drawn inside the pipette tip for transportation to another location, there exists a thin film or droplets of residue fluid attached to the outside of said pipette tip. This is due to the surface tension of the material used to manufacture the pipette tip (i.e.: polypropylene, polyethylene etc.) and the characteristic of the fluid sample. Common practice in the industry suggests that the outside of these pipette tips be wiped clean with a KIMWIPE tissue prior to the dispensing cycle. This however, causes the following problems:

(Page 3, Lines 25 to 32)

- Requires the contact and disposal of an additional product (i.e. tissue)
- Puts the user at risk while transporting highly infectious or radioactive fluids.
- Reduces the amount of specimen that can be analyzed.
- Adds cost and additional time necessary to perform dispensing.

Some manufactures have added silicone to the polypropylene tip material (i.e. siliconized pipette tips) at additional cost to help reduce this problem, but still have not eliminated it. The thin film that is left on the outside of the tip usually combines to form small fluid droplets and could:

(Page 4, lines 1 to 15)

- Affect the accuracy of the calibrated sample if they combine with the precise calibrated volume that is being dispensed from the inside of the pipette tip cavity. This can occur if the outside surfaces of the pipette tip touches the sides of the receiving container leaving its droplets to combine with the calibrated sample being transferred.
- Droplets can fall from the outside surface of the pipette tip while being transported in or out of the container;
- Droplets can migrate to the pipette tip's dispensing end and combine with the precision amount of internal calibrated fluid to affect the dispensing accuracy;
- Leads to cross-contamination or contamination in general, if any of the outside fluid were to contact any surface or thing (i.e. radioactive material or volatile fluids);
- In applications where samples are very small and precious any additional fluid that would be wasted by being attached to the outside surface of the tip could become very costly and would allow fewer test specimens to be examined.

This new invention addresses all of these concerns by providing an injection molded wiper as part of the sealable device specifically engineered to eliminate any and all residue attached to the outside surface of a pipette tip that typically occurs during transferring of fluids from a sample fluid container during liquid pipetting. (Page 4, lines 16-18)

It is a further object of this invention to provide a closure with wiping mechanism for pipette tips which effectively removes all the liquid from the outside surface of the tip as it is withdrawn from the vial while still incorporating an access cap that can be resealed after use. More particularly, a one piece injection molded closure which **incorporates a conical section with a spiral finger or fingers designed to resiliently expand and contract about a tubular conical pipette tip maintaining contact at all times with its outside surface while wiping and removing the fluid film or droplets from its surface.** Again, it is difficult to compensate for the amount of fluid left behind clinging to the outside of the pipette tip because it varies by the nature of the fluid, its characteristics and more often by the technique of the person doing the

pipetting. Even the most experienced technician will have inconsistencies because of interruptions that in effect can void test results. However, this wiping feature eliminates the above-mentioned problems while more importantly, saving time and increasing sample life. (Page 8, lines 21-32) It also helps to minimize air exchanges within the container by providing minimum size openings compared to open neck containers. This helps to reduce airborne contaminants from both entering and exiting the containers while also increasing the life of the fluid specimen due to evaporation or aging of the sample. (Page 8. lines 1-14)

Rejection under 35 USC 103

The rejection of Claims 18-23 under 35 U.S.C 103(a) as being unpatentable over Smith US 5,513,768 (applicant is inventor) in view of Carluccio US 4,390,298 and in view of Leopardi et al US 5,514,339 Overcome.

- (1) There is no justification, in Smith, Carlucci and Leopardi, or any other prior art separate from the applicants disclosure, which suggest that these references be combined, much less be combined in the manner proposed.
- (2) The proposed combination would not be physically possible or operative.
- (3) Even if Smith, Carlucci and Leopardi were to be combined in the manner proposed, the proposed combination would not show all the novel physical features of the applicant's invention.
- (4) These novel physical features produce new and unexpected results and hence unobvious and patentable over these references.

The References and Differences of the Present Invention Thereover

Prior to discussing the claims and the above four points, applicant will first discuss the reference and the general novelty of the present invention and its unobviousness over the noted references.

Smith US 5,513,768

Smith US 5,513,768 (Applicant is inventor) illustrates in Fig. 6 as depicted by the examiner a specifically engineered integrated two-cap design, a sealing cap (14) and a locking cap (16) for sealing a container (12). The sealing cap (14) has a generally convex end wall with optional syringe access port for penetration by a metal tubular needle. The sealing member is configured for being inserted in the open end of a tubular member with the generally convex end wall positioned in the tubular member and bulging in a direction away from the open end. With this construction, as the pressure in the tubular member increases, it tends to deflect and flatten the generally convex end wall, thereby causing the perimeter or rim of the end wall to expand radially outward and enhance the seal between the sealing member and the inner wall of the tubular member. As a result, the sealing capacity is increased when it is most needed, i.e., when high pressure within the tubular member develops. In addition, as the pressures in the tubular member increase and deflects the generally convex end wall, the deflection advantageously increases the sealed volume, thereby tending to reduce the internal pressure. Also, as pressure decreases the seal interference decreases and makes for much easier cap removal. (Page 1, 44-61)

Applicants new invention includes a wiping cap, not a sealing cap, that is specifically engineered to incorporate a conical section with a spiral finger or fingers designed to resiliently expand and contract about a tubular conical pipette tip maintaining contact at all times with its outside surface while wiping and removing the fluid film or droplets from its surface. (Page 8, Lines 24-27).

The wiping cap is neither a sealing cap as described by previous issued patent (Smith '768) or would work as a wiping cap if a syringe as described in the Smith '768 was inserted into said wiping cap of applicants new invention. The wiping cap of the Applicants invention is conical in design to accommodate standard pipette tips and not a tubular metal syringe as would be necessary to puncture said sealing cap in Smith '768. In addition, a standard plastic pipette tip could not puncture said sealing cap in Smith '768 nor access the fluid within container (12) without complete removal of said sealing cap in Smith '768.

Carluccio US 4,390,298

Carluccio US 4,390,298 is a wiper plug for use in a dispenser for liquid cosmetic products that **removes excess liquid** on the rod and head of a cosmetic applicator when the applicator is withdrawn from the bottle. The wiper plug has a body with an axial opening, and a resilient wiper section that defines an extension of the axial opening, preferably of decreasing diameter, and terminates in a lower wiper edge. The wiper section has one or more cuts or slots therein extending axially from the wiper edge, such that the wiper edge defines a radially enlargeable wiper opening that is resiliently held against the rod and head of the applicator to remove excess liquid on the rod and head when the applicator is withdrawn axially through the opening. (abstract). **Moreover, when the applicator 16 is withdrawn, the rod 18 and head 22 pull the wiper edge 32 axially, and the wiper edge 32, due to the helical construction of the wiper section 30, is drawn in and around the rod 18 and thereafter the head 22 of the applicator to effectively remove excess liquid on the rod and head.** (Carluccio Page 2, lines 34-49)

Carluccio invention uses a wiper edge 32 as shown in Figures 1 and 2, that is described as a donut shaped projection or rim about wiper opening 14a. This wiper edge 32 is used to wipe the excess fluid from the bristles 24, brush or polyurethane foam applicator as described. **There is no mention in the patent or shown in the drawing figures that suggest that the wiper section 30 or the helical slot 34 formed in the wiper section 30 is used as a wiping mechanism.** In fact, it is very well described that the helical construction of the wiper section is what allows the wiper edge 32 to expand the opening 14a to accommodate the rod 18 and head 22. This is in contrast to the applicants invention which describes a one piece injection molded closure which incorporates a conical section with a spiral finger or fingers designed to resiliently expand and contract about a tubular conical pipette tip maintaining contact at all times with its outside surface while wiping and removing the fluid film or droplets from its surface (Applicant's Page 8, lines 24-27) as shown in Figures 16 and 17.

The specific design of the wiper edge 32 of Carluccio is unlike that of the applicant's invention. As shown, the wiper section 30 is conical and terminates in a lower annular wiper edge or rim 32 of enlarged thickness (Carluccio Page 2, lines 31-33). This specific detail is designed to wrap around a rod shaped brush and scrape the excess fluid off the brush. Because of the additional material added to this area for this specific purpose, the lower end is not flexible and resilient as is the applicant's invention. Due to this increased wall section of wiper edge 32, the wiper edge 32 would not be capable of creating an adjustable opening 14a that would be necessary to adapt to the conical configuration that is associated with disposable pipette tips. This is due to the fact that some conical pipette tips can increase 5 to 10 times their smallest diameter. (i.e.: .035 to .340 Diameter). Carluccio invention would wrap about the smallest conical section but would not be flexible enough to slide about the increasing conical surface, as does the spiral finger of the applicant's invention. The enlarged wiper edge or rim 32 of Carlucci invention is not engineered to accommodate such a large transition and is not engineered to remove all the fluid from the outside surface of the pipette tip as described in the applicants invention.

Unlike applicant's invention, **Carluccio wiper plug is used to remove excess liquid** on the rod and head of the applicator unlike the applicant's invention. In fact, if Carluccio invention were specifically engineered to remove all of the fluid instead of just the excess fluid as it design to do, Carluccio invention would not work for the purpose it was created. This contradicts the applicant's invention, which requires complete removal of all fluid from the outside surface of the pipette tip to be effective. In addition the conical wiping section of Carluccio may appear to look similar but are engineered to perform different functions. It is well known in patent law that portions of a reference may not be adopted and others ignored. Stated in other terms, Carluccio wiper plug cannot be said to suggest applicant's invention.

Leopardi US 5,514,339

Leopardi US 5,514,339 is a test tube stopper (1) which is composed of a horizontal bottom wall (12) that is comprised of two or more elastically yielding sectors (16) which can bend under the action of a device (43) being introduced into the test tube (3) through the bottom wall (12) for introducing or withdrawing liquid. As described by the examiner the elastically yielding sectors (16) scrape against the withdrawal device (43), such as a pipette for example, when the withdrawal device has been immersed into the test tube (3) and is being withdrawn therefrom. Any drops of liquid, such as blood, which have been deposited on the walls of the device (43) during the withdrawal operation, are thus removed. Advantageously, the sectors (16) provide a cleaning of the withdrawal device (43), which is not realized by test tube sealing devices of the traditional type. (Page 4, lines 13-20).

Unlike applicant's invention, the stopper (1) is preferably made of rubber, or of plastic rubber, or of other elastic thermoplastic polymers. (Page 3, lines 31-32) and the sectors (16) are obtained by punching or cutting the bottom wall (12), as by using a punch cutter provided with very sharp blades so as not to remove any quantity of material from the bottom wall (12) or otherwise reduce the thickness of the sectors (16). The sectors (16) thus have edges (13) formed by the punching or cutting operation. The sector edges (13) are in close contact with one another. (page 3, lines 37-44) and form horizontal slits as shown in Figures 3 and 4. These slits or elastic yielding sectors (16) do not wrap about the device (43) as does applicants invention and thus **cannot maintain contact at all times about the outside surface of the device while wiping and removing the fluid film or droplets from its surface** as does the applicants spiral finger.

In fact, as the device diameter increases whether it be a rod shaped or conical shaped device the ability of the these slits or elastic yielding sectors (16) to remove fluid from the device decreases unlike applicants invention. As the device (43) diameter of Leopardi increases the sectors (16) will fold downward upon penetration of the device until the edge (13) are grossly separated. This will then provide an area between these edges (13) whereby fluid cannot be removed by the sectors (16) and therefore would leave untouched fluid on the outside surface of

device (43) during the withdrawal of device (43) leaving potential contaminate on the device surface unlike that of applicants invention which incorporates a conical section with a spiral finger or fingers designed to resiliently expand and contract about a tubular conical pipette tip maintaining contact at all times with its outside surface while wiping and removing the fluid film or droplets from its surface (Applicant's Page 8, lines 24-27).

In addition, as the device (43) is removed or withdrawn, the elastic yielding sectors (16) could be pulled upward or invert about the outside diameter of the device (43) thereby possible exposing the user to contaminated fluid. It would also be very possible that fluid could be projected or become airborne depending upon the withdrawal speed of the device (43) and the friction between the sectors (16) and the outside diameter surface of device (43). This can easily happen because the stopper (1) is constructed from a rubber type material and is constructed of sectors (16) perpendicular to the withdrawn device with no means to prevent it from inverting other than the pierceable stopper 2A or 2B which is normally removed prior to the user accessing the fluid. (Page 4, lines 23-24). Because of this, it is asserted that there is no relationship between these two wiping mechanisms. The prior art lacks any suggestion that the reference be modified to meet the claims of the applicant in a manner required to adapt to the conical wall of a pipette tip while removing the unwanted outside surface fluid of a pipette tip.

Smith '668, Carluccio '298 and Leopardi '339 Do Not Contain Any Justification to Support Their Combination, Much Less in the Manner Proposed

With regard to the proposed combination of Smith '668, Carluccio '298 and Leopardi '339, it is well known that in order for any prior-art references themselves to be validly combined for use in a prior-art §103 rejection, the references themselves must suggest that they be combined, E.g., as was stated In re Sernaker, 217 U.S.P.Q. 1,6 (C.A.F.C. 1983):

“[P]rior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantages to be derived from combining their teachings.”

That the suggestion to combine the references should not come from applicant was forcefully stated in Orthopedic Equipment Co. v. United States, 217 U.S. P.Q. 193, 199 (C.A.F.C. 1983):

“It is wrong to use the patent in suite [here the patent application] as a guide through the maze of prior art references, combining the right references in the right way to achieve the result of the claims in suit [here the claims pending]. Monday morning quarterbacking is quite improper when resolving the question of nonobviousness in a court of law [here the PTO].”

As was further stated in Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 U.S.P.Q.2d 1434 (C.A.F.C. 1988), “[w]here prior-art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself . . . *Something in the prior art must suggest the desirability and thus the obviousness of making the combination.*”

In line with these decisions, recently the Board stated in Ex parte Levengood, 28 U.S.P.Q.2d 1300 (P.T.O.B.A.&I. 1993):

“In order to establish a prima facie case of obviousness, it is necessary for the examiner to present evidence, preferably in the form of some teaching, suggestion, incentive or inference in the applied prior art, or in the form of generally available knowledge, that one having ordinary skill in the art would have been led to combine the relevant teachings of the, applied references in the proposed manner to arrive at the claimed invention . . . That which is within the capabilities of one skilled in the art is not synonymous with obviousness. . . That one can reconstruct and/or explain the theoretical mechanism of an invention by means of logic and sound scientific reasoning does not afford the basis for an obviousness conclusion unless that logic and reasoning also supplies sufficient impetus to have led one of the ordinary skills in the art to combine the teachings of the references to make the claimed invention. . . Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a prim facie case of obviousness only by showing some objective teaching in either the prior art, or knowledge generally available to one of ordinary skill in the art, that ‘would lead’ that individual ‘to combine the relevant teaching of the references.’ . . . Accordingly an examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant’s invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done.”

In the present case, there is no reason given in the Office Action to support the proposed combination, other than the statement "It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the cap of Smith ' 768 (Applicant is inventor), providing a wiping feature comprising a conical wiper with helical slot, as taught by Carluccio '298, and taught to be a desirable addition to a syringe port by Leopardi '330, motivated by the benefit of removing excess liquid such as blood, from a syringe." However, the fact that each reference teaches some mechanism for accomplishing some desired result is not sufficient to gratuitously and selectively substitute parts of one reference for a part of another reference in order to meet applicants' novel claimed combination. Applicant submits that the fact that the combination produces advantages militates in favor of the applicant because it proves that the combination produces new and unexpected results and hence is unobvious.

As stated in the above Levengood case,

"That one can reconstruct and/or explain the theoretical mechanism of an invention by means of logic and sound scientific reasoning does not afford the basis for an obviousness conclusion unless that logic and reasoning also supplies sufficient impetus to have led one of ordinary skill in the art to combine the teachings of the references to make claimed invention."

Applicant therefore submit that combining Smith ' 768 (Applicant is inventor), Carluccio '298, and Leopardi '330 is not legally justified and is therefore improper. Thus applicant submits that the rejection on these references is also improper and should be withdrawn.

Applicants respectfully request, if the claims are rejected upon any combination of references, that the Examiner include an explanation, in accordance with M.P.E.P. § 706.02. Ex parte Clapp, 27 U.S.P.Q. 972 (P.O.B.A. 1985), and Ex parte Levengood, supra, a "factual basis to support his conclusion that would have been obvious" to make the combination.

Even if Smith ‘ 768 (Applicant is inventor), Carluccio ‘298, and Leopardi ‘330 Were Combined in the Manner Proposed, the Proposed Combination Would Not Show All of the Novel Physical Features of Claim 18.

However, even if the combination proposed were legally justified, claim 18 would still have novel (and unobvious) physical features over the proposed combination. In other words the applicant’s invention, as defined by claim 18, comprises much more than merely substituting parts of the stated prior art.

Specifically, as specified in Amended Claim 18, the wiping cap includes “ **A wiping cap for pipette tips, for removing residue fluid attached to the outside of said pipette tip, comprising**” which specifically addresses the use of applicants wiping cap with pipette tips. Upon filling the inside volume with a fluid sample, said pipette tip is withdrawn from said wiping cap and maintains contact with “**said wiper section getting smaller in a direction away from said open end and being configured to include at least one helically formed slot forming a wiping finger, said wiping finger being adapted to be resiliently held against said pipette tip inserted therethrough including means to remove outside surface fluid when said pipette tip is withdrawn axially through said wiper finger**” As shown and illustrated in Figures 16 and 17 the helical formed spiral wiping finger or fingers (90) is what makes continuous contact with the outside surface of the pipette tip to remove the film of residue fluid attached to the outside of the pipette tip. Unlike prior art, during the withdrawal cycle the wiping fingers 90, contract about the outside surface of the pipette tip 115 and removed all fluid droplets 117 from the outside of the tip and leave it within tube 50 as shown in Figure 16 and Figures 17. (Page 20, lines 16-18)

Carluccio US 4,390,298 defines a wiper plug and a resilient wiper section that defines an extension of the axial opening, preferably of decreasing diameter, and terminates in a lower wiper edge. The wiper edge 32, due to the helical construction of the wiper section 30, is drawn in and around the rod 18 and thereafter the head 22 of the applicator to effectively remove excess liquid on the rod and head. (Carluccio Page 2, lines 34-49).

Thus the wiper edge 32 and not the helical construction of the conical section is what provide the means to wipe the excess fluid from the cosmetic applicator in Carluccio invention. The conical wiper (30) and helical slot (34) as described by the examiner, as a wiping feature is incorrect and only provide means to allow the wiper edge 32 to increase and decrease the axial opening diameter 14a unlike applicant's invention.

Carluccio US 4,390,298 in combination with Leopardi US 5,514,339 as described by the examiner teaches a wiping feature that removes excess liquid, such as blood from the syringe (43). Leopardi is a test tube stopper (1), which is composed of a horizontal bottom wall (12) that is comprised of two or more elastically yielding sectors (16). Advantageously, the sectors (16) provide a cleaning of the withdrawal device (43), which is not realized by test tube sealing devices of the traditional type. (Page 4, lines 13-20). **As described, device 43 is a small tube such as a syringe and not a disposable pipette tip as used in the applicant's invention.** These slits or elastic yielding sectors (16) do don't wrap about the device (43) as does applicants invention and thus cannot maintain lcontact at all times about the outside surface of the device while wiping and removing the fluid film or droplets from its surface as does the applicants spiral finger nor is there any suggestion in the prior art that the reference be modified to adapt to the use of pipette tips.

Carluccio US 4,390,298 in combination with Leopardi US 5,514,339 in combination with Smith ' 768 (Applicant is inventor) does not provide any additional teachings to provide a wiping cap with a spiral wiping finger being adapted to be resiliently held against a pipette tip inserted therethrough so as to remove the residue or unwanted outside surface fluid from the surface of a pipette tip.

Thus if the references were combined, it would be necessary to make modifications, not taught in the prior art, in order to combine the reference in the manner suggested. Each reference is complete and functional in itself, so there would be no reason to use parts from or substitute parts to any reference. The prior-art references do not contain any suggestion (express or implied) that they be combined, or that they be combined in the manner suggested.

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Motivation does not exist for modifying Smith '768, Carluccio '298 or Leopardi '339 to arrive at the combination recited in the claims, absent applicant's disclosure. Therefore, it would not have been obvious to modify Smith '768 as discussed in the Office Action to arrive at the combination. Therefore, as shown, the results achieved by the applicant's invention are new and unexpected. Applicant's invention solves a different problem than the noted reference and such the different problem is recited in the claims. *In re Wright*, 6 USPQ 2d 1959 (1988) For all of the above-discussed reasons, it is respectfully requested that the rejection be withdrawn.

Claims 18 -23 have now been amended to recite structural differences between the Smith '768, Carluccio '298 or Leopardi '339. It is believed that the amended claims 18-23 now overcome any combination anticipated by Smith '768, Carluccio '298 or Leopardi '339 patents.

The Novel Physical Features of Claim 18 Produce New and Unexpected Results and Hence are Unobvious and Patentable Over these References Under § 103.

Also, applicant submits that the novel physical features of Claim 18 are also unobvious and hence patentable under § 103 since they produce new and unexpected results over Smith '768 (Applicants invention), Carluccio '298 or Leopardi '339 or any combination thereof.

The new and unexpected results are the ability of the applicants wiper cap to provide a sealable device that includes a tubular member and a wiping cap including means for securing said wiping cap to said tubular member. Said wiping cap including a conical wall section with at least one helically formed slot forming a wiping finger, said wiping finger being adapted to be resiliently held against an pipette tip inserted therethrough so as to remove the outside surface fluid when said pipette tip is withdrawn axially through said wiper finger. This in turn results in the ability of the wiping cap to remove all of the outside fluid from the pipette tip keeping it within the container unlike prior art.

The benefits associated with the transfer or pipetting of liquids in the laboratories using this new wiper cap design are many. Keeping all excess sample fluid within the container while:

(Page 21, lines 29-32)

- Eliminating the necessity to wipe the outside surface of the tip with tissue;
- Reduces contamination associated with pipetting hazardous materials;
- Minimizes potential fluid loss and contamination due to spillage;
- Increases the accuracy and precision of the dispensed sample by eliminating the possibility of outside surface fluid combining with the calibrated interior sample volume;
- Reduces the time required to perform pipetting tasks;
- Saves valuable sample fluids while prolonging sample life and;
- Minimizes air exchanges within the container.

This new invention addresses all of these concerns by providing an injection molded wiper finger as part of the closure device specifically engineered to eliminate any and all residue attached to the outside surface of a pipette tip that typically occurs during transferring of fluids from a sample fluid container during liquid pipetting. Applicant's invention therefore is vastly superior to that of either Smith '768, Carluccio '298 or Leopardi '339 or any combination thereof.

AMENDED CLAIMS

Claim 18,19,22 and 23 are respectfully submitted to be in condition for allowance. Support for Claim 18 is found in the specification, e.g., on Page 20, lines 5-23 and lines 28-32, Page 21, lines 1- 11 and lines 29-32, Page 22, lines 1-3 (Figures 11 through Figure 18).

NEW CLAIMS

Claim 47 through Claims 58. Support for these claims are found in the specification, e.g., on Page 20, lines 5-23 and lines 28-32, Page 21, lines 1- 11 and lines 29-32, Page 22, lines 1-3 (Figures 11 through Figure 18).

CONCLUSION

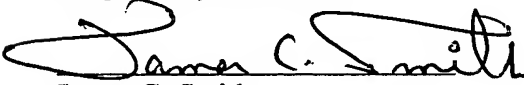
For all the above reasons, applicant submits that the specification and claims are now in proper form, and that the claims are defined patentably over prior art. Therefore I submit that this application is now in condition for allowance, which action is respectfully solicited.

Claims 19,20,21,22 and 23 depend from claim 18 and are believed to overcome the 35USC103(a) rejection. For the above-discussed reasons, applicant submits that claims 18-23 are all in condition of allowance. Claims 47-58 have been added for consideration. Allowance of these claims is respectfully solicited.

Conditional Request for Constructive Assistance

Applicant has amended the specification and claims of this application so that they are proper, definite, and define novel structure, which is unobvious. If for any reason this application is not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P 2173.02 and 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,

 Dec 9, 2005
James C. Smith Date

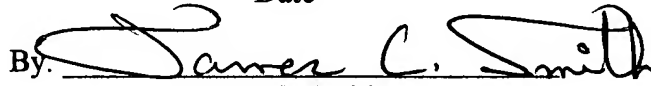
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By: 
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